USAID/EL SALVADOR HURRICANE RECONSTRUCTION SPECIAL OBJECTIVE

I. Background

Overview of Damage from Hurricane Mitch

In late October 1998 Hurricane Mitch pounded the Honduran coast, and generated intense rainfall across Central America. By November 1, the level of precipitation reached its maximum as Mitch, down graded to a tropical storm, stalled over the region. In El Salvador, this extreme precipitation fell on highly deforested land, already saturated by abnormally high rainfall in the month of October, triggering widespread flooding and landslides.

The Government of El Salvador (GOES) reports that 374 people died or are missing. The government opened 147 emergency shelters to accommodate another 55,864 people who were displaced. Twelve of the country's fourteen departments suffered significant damage. Roughly 65,200 hectares were flooded. Estimates of damage from the storm range from $132.5 million (GOES estimate) to $1.7 billion (U.S. Army Corps of Engineers (USACE)). The government estimates another $124.8 million in indirect losses from reduced markets for exports, reduced sales of agricultural commodities, and lingering health issues. The GOES estimates that GDP growth in 1998 was cut by half of one percent due to the combined impact of Hurricane Mitch and the El Nino.

The hardest hit areas were in low-lying coastal zones, particularly in the floodplain of the Lempa and San Miguel Grande rivers. These areas are highly susceptible to flooding during normal rainy seasons as they sit only a few feet, at most, above the water table. The Lempa River, which drains 48% of El Salvador and the southern highlands of Honduras, was already at flood stage when the spillways on the two major hydroelectric dams were opened. The resulting wall of water swept away three major bridges that traverse the Lempa, restricting access to the eastern third of the country and forcing the emergency evacuation of communities in the lower Lempa floodplain. In San Miguel Department, the Chilanguera and Grande de San Miguel rivers overflowed their banks creating a flash flood that surged through the town of Chilanguera, killing 126 people (another 81 people are still missing) and destroying 50 houses.

The heavy rainfall, flooding and mudslides triggered by Mitch severely damaged El Salvador's road network. Approximately 60% of the 1,998 kilometers of paved roads suffered some surface damage. The impact on secondary roads, most of which were in poor condition before Mitch due to lack of proper maintenance, was more severe. Approximately 2,653 kilometers of rural roads have been identified as in need of major rehabilitation. In addition, 15 bridges were damaged or destroyed by Mitch flooding, including the three bridges over the Lempa River.

The GOES has already taken action to repair the primary road network. Sixty-eight percent of the damaged paved roads have been rehabilitated. The GOES replaced two of the three Bailey-type bridges across the Lempa River. These bridges along with the continued use of the roadway on top of the 15th of September Dam and a railroad bridge parallel to the coastal highway have

eased the flow of traffic. More permanent structures, which were already in the process of construction when the floods occurred, will be completed later this year.

Damage to agriculture, the largest single affected sector, was significant, particularly in basic grains, coffee and sugarcane. Approximately 18% of the total 1998/99 basic grain harvest was lost, with major damage in the departments of Usulutan, San Vicente and San Miguel. However, for corn and beans 1998/99 was expected to be a bumper harvest. Hence, the loss of crops due to Mitch is not catastrophic in terms of national food supply. For affected farmers, many of whom are among El Salvador's poorest, the loss is a significant hardship. Coffee production in 1998 was hit hard; 3% of the harvest was lost due to Mitch and another 8.2% was lost earlier in the year due to El Nino. Major losses of sugarcane, totaling 9% of the estimated 1998/99 production, were sustained primarily in the coastal regions.

Livestock losses totaled approximately $1 million, including 2,992 head of cattle. Data collected by several NGOs operating in the coastal region show that most of the animals that perished were chickens and other small livestock.

The Ministry of Health's rapid and thorough response to the disaster was crucial in minimizing the outbreak and severity of diseases. Health promoters from other regions and 30 nurses assistants, funded by USAID, helped staff health clinics around the clock to attend to the needs of flood victims. The Ministry's efforts were complemented by the Academy for Educational Development, a USAID contractor, which launched an extensive campaign in the affected areas to educate people on how to treat contaminated water. The Ministry recorded 109,038 medical cases related to Mitch attended to between October 31 and November 18, 1998. Respiratory infections accounted for 23 percent of the cases, followed by skin ailments, diarrhea and conjunctivitis as the principal complaints.

Twenty-two small health units and some equipment were damaged or destroyed at a cost of close to $2.0 million. Of the 4,905 public primary and secondary schools in El Salvador, 283 were damaged or destroyed by flooding, landslides or in their use as refugee centers. These schools serve 92,488 students. One hundred and thirty-five of the Mitch-damaged schools are in three departments: San Vicente, Usulutan and San Miguel. The Economic Commission for Latin America (CEPAL) estimates that repairing the damage to the 283 schools will cost $5 million. In addition to the school buildings, CEPAL estimates that $2.2 million are needed for school furniture and $2.0 million for educational materials.

The Response

The disaster prompted a tremendous response from the international community -- governments, NGOs and private citizens. Most of the assistance channeled through the Salvadoran government was provided in-kind. The GOES received in-kind assistance from 16 foreign governments (including the United States), 19 international NGOs, 20 GOES embassies and consulates, and 20 private firms and individuals. The total value of the in-kind assistance that entered the country has not been quantified. However, the GOES reports that 961 tons of goods and food were received by the GOES and private sector institutions. The Ministry of Foreign Affairs estimates

that contributions in cash channeled through the GOES during the emergency phase totaled $4.3 million.

The U.S. Government has provided $37.7 million in assistance through USAID, USDA and the Department of Defense. The Department of Defense, through Joint Task Force-Aguila, assisted El Salvador with engineering, water provision and medical clinic missions at a cost of $420,562. The Department of Agriculture is providing El Salvador with $15 million under PL 480 Title I for tallow and vegetable oil and $5.7 million under Section 416 for yellow corn. USAID's contribution includes $123,451 in immediate emergency assistance for basic equipment and supplies. USAID also signed a $1.0 million cooperative agreement with CARE International to carry out a six-month emergency water rehabilitation activity (MAREAS) to clean 3,000 wells and rehabilitate 2,500 latrines in San Vicente, Usulutan and San Miguel departments.

USAID/El Salvador also identified up to $15.5 million over three years from ongoing activities that could help respond to the needs created by Mitch. The bulk of these resources are from the Water Strategic Objective which is already focused on watershed management issues in two of the hardest hit watersheds, in Ahuachapan and Usulutan departments.

II. Special Objective: "Reduced vulnerability of the rural poor to natural disasters in targeted areas"

Indicator: Percentage of communities in the targeted area with basic set of services and infrastructure.

The focus of USAID's assistance in response to the damage caused by Hurricane Mitch must be on reducing the vulnerability of the rural poor in the most affected areas. This implies more than simply restoring conditions to their pre-Mitch state. Rather, it requires:

- stimulating economic activity
- restoring and expanding access to basic community services
- mitigating the environmental impact of future natural disasters

This Special Objective is a natural and critical complement to USAID/El Salvador's current country strategy. The Strategic Plan originally approved in 1996 established two sub-goals: alleviation of rural poverty and the consolidation of the peace process. Achievement of both of these goals is hindered by damage caused by the storm. The activities under the Special Objective also complement the longer-term activities that USAID/El Salvador is undertaking.

This Special Objective is expected to have a quick impact, with all activities completed within 24 months of the receipt of funding. Meeting this timetable will depend on the use of various existing implementing mechanisms and, in some cases, expedited procurement procedures.

The focus on the rural poor reflects the disproportionate impact of the storm. The high losses in basic grains and the lost livestock are concentrated in poor communities. In most cases, these were the same communities where flooding led to contamination of water sources. The households that lost their homes were primarily those that could not afford to build more permanent structures. While the total cost of their losses was minimal, for these poor families

and communities it was all they had. It is likely that these communities have developed coping mechanisms for surviving hardship. Seasonal day labor, donations from outside organizations and support from family and friends are among them. For many families, however, the longer-term solution to such economic devastation is out-migration by at least one wage earner to San Salvador, or even the United States.

In the affected communities, the impact may have had a disproportionate impact on female-headed households, which tend to be among the most economically insecure. A GOES survey of the displaced population found that the proportion of women (49.5%) and youth (46.6% under age 15) affected by the flooding is roughly equal to that of the rural population as a whole. However, the survey also found that women head approximately 35% of the displaced households, as compared with 25.2 percent for all rural areas in 1997. Anecdotal information indicates that microentrepreneurs, predominantly women, in the hard hit areas lost a week or more of income because the heavy rains kept customers away. These demographics will be taken into account as USAID designs its interventions.

Resource and timetable constraints, along with USAID's focus on managing for results, require that interventions under this objective be limited geographically to the 137 municipalities that suffered damage as a result of Hurricane Mitch. For the most part, this is the south coastal area of the country and localized upstream areas. Exceptions to this limitation may be allowed in cases where the intervention is needed to address a broader natural disaster mitigation issue, such as watershed management upstream of the affected areas.

Within this general geographic limitation, the primary focus of USAID's reconstruction efforts will be in the 10 municipalities where the damage was most severe:

- Zacatecoluca, La Paz
- Tecoluca, San Vicente
- Usulutan, Usulutan
- Jiqilisco, Usulutan
- San Dionisio, Usulutan
- Puerto El Triunfo, Usulutan
- Concepcion Batres, Usulutan
- Jucuaran, Usulutan
- Transito, San Miguel
- Chirilagua, San Miguel

These ten municipalities have a total rural population of approximately 153,000 people. Within these ten municipalities, 147 communities of 37,000 people have been identified as the most affected.

Most of these municipalities are situated in the Lempa-Grande floodplain, one of the poorest regions of the country. It is also an area where people affected by the war had been recently

resettled, ex-combatants had been given land, and many land-reform cooperatives are located. Many of these communities had been relocated from mountainous regions of the country and had little experience with flooding and knowledge of how to build flood resistant houses.

The primary focus of Special Objective activities will be on working at the community level with strong community participation. Community and municipal government participation is essential to all stages of the process: the identification of needs, setting development priorities, implementation and, of course, the long-term sustainability of our interventions. USAID's implementing partners will need to develop a detailed understanding of and working relationship with these communities.

USAID does not have the resources necessary to address all the critical needs of even the most affected communities. Close coordination and, where possible, collaboration among donors, the GOES, local governments, local NGOs and other implementing institutions will be essential to the success of this objective. To foster this coordination, USAID is taking the lead with some NGOs to create networks of organizations working in major areas related to Mitch reconstruction, following the model of the existing network on water and sanitation.

This strategy and the interventions described below are based on USAID/El Salvador's experience and lessons learned from the 1992-1997 National Reconstruction Program. They also reflect the efforts and experience of USAID staff in developing and managing activities that require inter-sectoral coordination.

Critical Assumptions:

1. Congressional legislation will allow for expedited procurement procedures for supplemental funding.
2. USAID/W approves the various procurement waivers described in Section VI of this document.
3. The beginning of the rainy season in May does not significantly impede start-up activities or create new problems.
4. The Salvadoran Legislative Assembly rapidly ratifies a bilateral SOAG for activities to be implemented by the GOES.
5. For IR #2, potential housing beneficiaries have or will have title to their land.

Role of Customers and Partners in the Strategy Design

USAID has held extensive consultations with customers, partners and other stakeholders in the development of this strategy. USAID staff has participated in numerous field trips to the affected areas to assess the damage and consult with affected communities, local NGOs and local governments. Numerous other one-on-one meetings and consultations have been held with local and international NGOs, other donors and the national government.

Beginning in mid-February, 1999, the United Nations Development Program (UNDP) convened a series of roundtable discussions on major themes related to the GOES' national reconstruction

plan. The roundtables were attended by local and international NGOs, the Rural Development Commission, GOES personnel, the Social Investment Fund (FISDL), the Corporation of Mayors (COMURES), the network of NGOs working on gender issues, the InterAmerican Development Bank, United Nations agencies and USAID. The UNDP's final report from these meetings is expected to serve as the basis for the Government's plan to be presented at the May 1999 Consultative Group Meeting in Stockholm, Sweden.

Numerous assessments also provide important information on conditions and needs in the affected areas. The GOES conducted an assessment, partially financed by USAID/OFDA, of Mitch damage shortly after the hurricane hit. Data compiled under MAREAS provide a comprehensive look at water and sanitation needs in the area. These data are complemented by a USAID-financed study of water sources, watershed contamination and water distribution systems in the 18 municipalities, including the departments of Usulutan and Ahuachapan, in which the Water SO is focused. The Water SO also financed an annual survey of awareness of water contamination issues, conducted by the Academy for Educational Development, in the same area.

III. Intermediate Result #1: Economic Activity Stimulated

Indicators:

1. Number of individual parcels resurveyed, re-measured and re-staked.
2. Area planted with high-value crops
3. Number of kilometers of rural roads rehabilitated
4. Number of kilometers of electrical distribution lines

Mitch dealt a severe blow to the economy of the targeted area. For the rural poor, stimulation of the economy is essential to their ability to get back on their feet and to avoid dependence on donations. It is also through increased economic activity in the area that the rural poor will be able to improve their standard of living and their ability to cope with future disasters.

The economy of the area will depend on reactivating agricultural production, providing access to markets, and encouraging increased private investment in the area through secure land titles and access to electricity. Infrastructure building activities, such as road rehabilitation, can be designed to make use of local labor, thereby injecting much needed cash into the local economy. The improved roads, essential for moving products to market, will probably be the most important factor in revitalizing the agricultural sector. In fact, a World Bank rural poverty study in El Salvador identifies proximity to a paved road as having the greatest influence on household income. Access to markets and electricity also are key to the development of microenterprises, a sector of the economy dominated by women. Secured land titles enable land landholders to access credit to finance inputs for farming or other enterprises.

USAID/El Salvador is not planning on using Special Objective funding for credit activities. The Special Objective emphasizes donations of urgently needed inputs, cash-for-work to inject

money into the local economy, and improvements in productive infrastructure to stimulate more sustainable growth and access to regular financial and marketing services.

This decision not to support credit interventions reflects the lack of damage to any of our microfinance partners' portfolios or physical facilities. With the InterAmerican Development Bank planning to provide $12.8 million for Mitch-affected finance institutions, this is not a priority area for USAID support.

Furthermore, USAID/El Salvador's experience with credit activities during the post-war national reconstruction program demonstrates that credit activities targeted at disaster victims are counter-productive in the long term. Small farmers have little collateral and tend to cultivate basic grains, which are susceptible to high losses. Default rates are consequently quite high, especially as the borrowers view the financing as a grant instead of a loan. These borrowers fail to learn the discipline necessary to access regular financial services and are therefore, seen by regular credit institutions as unacceptable risks.

The discussion below reviews the damage inflicted in agricultural production, land titling, electricity, and other productive infrastructure and describes anticipated actions by our partners and proposed activities by USAID under this Special Objective.

Agricultural Production

The floods of November 1998 struck just weeks before the harvest of basic grains was to take place. Roughly 80 percent of the farmers in the target area grow basic grains and probably most lost virtually their entire crop. With few other resources to fall back on, most of these farmers and their families are dependent on relatives, donated food assistance and day-labor employment harvesting coffee and sugar cane to see them through to the next season. However, with the loss of their crop, these farmers have lost their seed grain and income needed to buy inputs for planting in the following season. Without those inputs, the farmers will be unable to replant their fields, prolonging their dependence on food assistance and retarding economic reactivation of the region.

USAID believes that the combined efforts of the GOES, other donors and NGOs will adequately cover the needs of affected farmers to plant basic grains in the coming season. CARITAS, an NGO associated with Catholic Church, will finance an agricultural project of $3.3 million in 151 rural communities benefiting 6,000 families. The Salvadoran Red Cross, in conjunction with the American, Spanish and British Red Cross, will provide agricultural packages for 9,000 families who live in coastal areas. CARE, with its own funds, will provide 3,800 families in the USAID's target municipalities with tools, seeds and other inputs for corn planting. The German technical assistance agency and the Japanese Government have also distributed agricultural inputs and tools. The National Agricultural Research and Extension Agency (CENTA) will assist 15,000 families with agricultural packages. The Ministry of Agriculture has made available a credit line of approximately $35 million dollars for those who had an agricultural credit and due to Mitch were not able to repay the loan.

USAID is investigating options for providing 5,000 affected farmers with seeds, land preparation and fertilizer for horticultural and other high-value crops. For these farmers, most of whom have

traditionally grown grains, an emphasis on alternative crops may lead to their long-term adoption and higher income. It is also necessary to focus on alternatives to grains because the opportunity to plant grain seeds this season will have passed by the time supplemental funding is available.

USAID/El Salvador anticipates implementing this activity either through an amendment to an ongoing contract with Chemonics International under the current CRECER Project, through a cooperative agreement with a U.S. PVO or local NGO, or through a combination of these mechanisms. The requirement for the purchase of fertilizers, which is a restricted commodity, can be met.

Rural Roads

The Mitch-inflicted damage to the rural road network isolated entire communities and blocked the movement of harvested crops to market. Over 2,600 kilometers of secondary roads still require repair, along with numerous tertiary and farm access roads. The Ministry of Public Works, which is responsible for maintenance of the entire network of primary and secondary roads, does not have the resources - equipment, staff and financing - to cope with the extent of the damage.

The GOES has secured a loan from the InterAmerican Development Bank for $18.2 million basic maintenance of 2,000 kilometers of primary and secondary roads. This basic maintenance includes cleaning of drainage canals, cleaning road surfaces and filling potholes. The loan does not cover construction of new drainage, road surfaces or bridges. Some road rehabilitation will be undertaken through food-for-work programs sponsored by the World Food Program and National Secretariat for the Family.

Road repairs made in the short term will be for naught unless there is assurance that the roads will be maintained. The Ministry of Public Works normally can only support the maintenance of 20% of the damaged network. In the lower Lempa plain, the lack of road maintenance is exacerbated by the lack of nearby rock quarries, thus requiring the costly transportation of gravel from other parts of the country.

USAID has been looking into options for municipal government managed or contracted road rehabilitation and maintenance services. Catholic Relief Service, in a separate effort, is seeking excess U.S. military equipment to be used by an NGO-local government managed entity to service the roads in five municipalities, including several in the Special Objective's target area. These efforts may get considerably more support from the new Flores administration, due to take office in June 1999, that has expressed interest in decentralization to the municipal level of the Ministry of Public Work's maintenance functions.

USAID has consulted with mayors and community leaders and reviewed the Ministry of Public Works' action plans for the affected municipalities in coming up with a preliminary list of 113 kilometers of rural roads to be rehabilitated. This list may be adjusted to ensure the roads selected complement other activities financed by USAID and other donors. In areas where gravel is hard to obtain, the roads will be constructed using a soil stabilizing and waterproof product. Based on USAID's and the GOES' experience in other parts of the country, the use of the soil stabilizing product creates an all-weather road surface with minimal maintenance requirements.

USAID/El Salvador plans to implement this activity through the Ministry of Public Works. USAID has had considerable experience working with this Ministry on rural road activities financed under the National Reconstruction Program following the signing of the Peace Accords.

Land Titles

Most small farmers in El Salvador do not have title to their land, limiting their willingness to invest in the land and in their ability to use the land as collateral to obtain credit. As a final stage in USAID's assistance to the Peace Accords-mandated land transfer program, USAID's Land Parcelization Activity is assisting communities that received joint land titles to divide the property into individual family parcels and to obtain individual land titles. Over 6,000 beneficiaries live on parcels located in the 10 target municipalities.

Floodwaters washed away parcel and perimeter boundary markers and, in some cases, changed the course of rivers and streams in many of these properties in La Paz, San Vicente, Usulutan, San Miguel and Chalatenango departments. Two thousand individual parcels covering 4,200 hectares, or 10 percent of the projected beneficiaries under the current activity, were affected by this damage to boundary markers and river courses. This land will have to be resurveyed before the land titling process can be completed.

The re-surveying of the land parcels will be implemented through an amendment to an ongoing cooperative agreement with CARE. CARE implements this activity in collaboration with three local NGOs and the GOES, through the Institute for Liberty and Progress. CARE estimates that this re-surveying will be completed over a 10-month period.

Electricity

Access to electricity is a key factor spurring economic activity, job creation and the improvement of the quality of life in rural areas. The use of electricity facilitates the formation of rural microenterprises and the operation of irrigation systems for high-value crops. Electricity is also a significant component in housing, water systems and health services. In the target area, only five percent of the population has access to electricity, as compared with 65 percent nationwide and 26 percent in rural areas.

Damage by Mitch to the electrical grid, primarily to the distribution network, was minor and repairs, which are the responsibility of the new private distributors, have been made. The distributors do not have plans to expand the network due to the cost of construction and the low rates they are allowed to charge rural consumers. Therefore, expanding the distribution grid depends on investment from donors and the GOES. In 1998, 60 kilometers of electrical distribution lines were built in rural Jiquilisco municipality with surplus supplies from previous USAID projects, German financing and local labor.

Under this Special Objective, USAID will build 80 kilometers of new distribution lines in areas affected by Mitch. This activity will require the participation of communities and municipal governments in setting priorities and close coordination with other Mitch reconstruction activities. Community participation through the supply of unskilled local labor will also be needed to construct the new lines.

The Rural Electrification Unit of the Technical Secretariat for External Financing (SETEFE), in the Ministry of Foreign Affairs, will implement this activity. USAID has worked closely with this unit in recent years on expanding rural electrification using excess materials from previous USAID and GOES electrical infrastructure projects. Through the Special Objective, USAID will provide additional funding to pay for engineering designs and procure more materials to complement materials made available by SETEFE. This activity will be completed in 12 months.

Small Infrastructure

Flooding and landslides damaged numerous small vehicular and footbridges, short sections of tertiary road, drainage canals and other small infrastructure. While small, these infrastructure needs are frequently critical to the life of a community. Without them, a community's access to markets, schools and clinics may be restricted.

As noted earlier, the World Food Program and the National Secretariat for the Family are supporting food-for-work projects for road rehabilitation, cleaning drainage canals and repairing houses. The Ministry of Agriculture, using a World Bank loan, is currently requesting expressions of interest to rebuild several infrastructure works such as fishing harbors and irrigation canals.

USAID will finance 30 to 40 small infrastructure activities in communities in the affected area. While the focus of these activities will be on productive infrastructure, they may include infrastructure more associated with community services, such as child care centers and clinics. A locally based U.S. PVO or local NGO will manage these activities as one part of a package of possible interventions to assist affected communities. USAID will work with the PVO/NGO to establish criteria for eligible projects.

IV. IR 2: Increased access to basic community services

Indicators:

1. Number of water systems constructed
2. Number of wells improved
3. Number of latrines constructed
4. Number of schools reconstructed or repaired

The communities in the affected areas need access to basic social services if they are to realize their development potential and reduce their vulnerability to natural disasters. The floods and landslides associated with Mitch exacted a toll on social infrastructure, particularly water systems and wells, sanitation facilities, housing, schools and health posts. However, access to these services and facilities was limited even before the flooding. Under this intermediate result, the Special Objective will focus on restoring pre-existing social services and upgrading others to provide more equitable access to these basic services.

The discussion below reviews the state of water and sanitation services, housing, schools and health posts in the focus area, and describes USAID/El Salvador's current plans for addressing the gap.

Water and Sanitation

The lack of access to clean water is a critical development constraint in El Salvador. The problem is particularly severe in the coastal zone of San Vicente, Usulutan and San Miguel departments, the area most affected by flooding. Approximately 55% of the families in the zone obtain water for domestic consumption from 5,000 shallow wells that draw water from a water table only 2-5 meters below the surface in the dry season. Another 20 percent of the families get their water from eight water systems that pipe the water to communal standpipes and, in some cases, directly to houses. The remaining 25 percent of the families meet their water needs from taps or wells located in neighboring houses, from rivers or springs, or by purchasing it from local vendors.

Most of the wells in the region lack protective walls and sanitary seals. The floodwaters contaminated the wells with dirt, human waste from flooded latrines and dead animals. As noted earlier, USAID financed a cooperative agreement with CARE to clean and disinfect all the wells in the area, and upgrade 500 wells to minimize contamination.

By March 15, 1999, CARE had cleaned more than 4,625 wells and rehabilitated 4,750 latrines. The first 200 of 500 community wells have been upgraded with covers and pumps to mitigate future flooding problems. CARE is also repairing four community water systems and is constructing four new systems. The construction of these four new systems will increase the percentage of the population served by piped water to 26 percent. The new and rehabilitated systems will provide water for nearly 7,000 people. CARE has also rehabilitated two small bridges on the road to the community of Puerto el Flor, in Usulutan Department, to facilitate repair of the village water system.

CARE estimates that another 3,036 wells in this area need upgrading and has identified 17 communities (approximately 14,000 people) that need deep wells because the water table is highly saline.

The mixing of latrine overflow and sewage in the floodwaters exacerbated the contamination of wells and underground water in the affected areas. The areas most affected are located in Garita Palmera and Barra de Santiago in Ahuachapan Department, San Dionisio, Jiquilisco and Puerto El Triunfo in Usulutan Department. Preliminary investigations in the Usulutan watershed indicate that the towns of Jiquilisco, Puerto El Triunfo and Berlin are the primary sources of contamination of surface and underground water sources by sewage.

The persistence of the contamination of well water also is a function of the shallowness of the wells, and the lack of adequate disposal of human and solid waste. Thirty-eight percent of the families in the area (3,021 families) do not have access to latrines or other systems for disposing of human waste. Of the 4,365 latrines in the area, 18% are pit latrines that contribute to the contamination of the shallow water table. CARE estimates that 3,021 dry composting latrines

need to be constructed to provide all families with access to basic, non-contaminating sanitary facilities.

Even with the composting latrines, new water systems and better-constructed wells, the people of the area will need to treat the water before consuming it. A survey of the area found that only 29 percent of the people in the affected area were taking any action to treat their water.

USAID/El Salvador plans to amend an existing cooperative agreement to address these water and sanitation issues in the Lempa-Grande floodplain. The implementing organization will build approximately 10 new water systems serving 10,000 people. Fewer systems may be necessary if it is feasible to construct systems serving multiple communities. The implementing agency will also install hand pumps and sanitary seals on 1,000 household and public wells benefiting 8,000 people and construct approximately 2,500 latrines to serve 15,000 people.

Implementation of this activity will follow the methodology being used under the ongoing water and sanitation activity. Infrastructure improvements will be complemented by health education to increase the number of families that treat their water, and improve child-survival practices. The implementing entity will provide training and emphasize community organization to ensure the sustainability of these interventions.

USAID/El Salvador is also investigating options for the treatment of wastewater from the three towns identified as major sources of water contamination. The most viable option is to establish low-cost lagoons and created wetlands to process the wastewater collected in these towns. USAID will work closely with the municipalities and the national water and sewerage authority on this intervention.

Housing

The Salvadoran Government estimates that 10,372 families lost their homes (8,077 damaged, 2,295 destroyed) as a consequence of Hurricane Mitch. Of these homes, 4,182 (3,165 damaged, 1,017 destroyed) are located in the target area. The government identified another 36,174 houses located in areas of potential danger that need to be relocated.

Field observation suggests that most houses that had been lost were constructed with materials inappropriate to a flood-prone area. Sturdy cement-block houses were frequently seen next to adobe structures that had disintegrated in the flood. None of the houses is elevated to provide protection from seasonal flooding. Even in a normal wet season, the floors are continually wet, a condition that contributes to the spread of disease.

The GOES, with Japanese local currency resources, provided materials for temporary shelters to 10,372 families that had lost their homes. This was a temporary solution to meet the immediate needs of the families and avoid the extended congregation of displaced people in government-run shelters. The GOES estimates that $28 million are required to reconstruct these homes. The GOES is also considering the relocation of the 36,174 families in high risk areas, and, 1,000 of the Mitch-attended families, to create new communities in less flood-prone areas at a cost of $100 million over the next ten years.

The governments of Taiwan and Spain are both negotiating loans, for $4 million and $15 million respectively, with the GOES to finance the construction of houses, leaving a funding gap of $9 million. The German technical assistance agency is providing $365,000 to build 71 houses with latrines in San Miguel Department.

USAID does not have the resources to replace or upgrade all the houses in the floodplain that have been damaged or destroyed by the floods. However, USAID can play a role in promoting the innovative design and production of homes that are resistant to flood damage. USAID/El Salvador is investigating several options for how this might be done.

One option being considered is to finance the building of approximately 500 houses. The houses will be elevated, either on an earthen mound or on pilings, to provide additional protection from flooding. The houses may be built with water-impermeable blocks made with the same soil stabilizer described above for rural roads. The use of the stabilizer in the blocks ensures a stronger house construction in flood-prone areas. The blocks can be made from local soils and do not need to be fired using scarce wood supplies. This approach could be implemented by a U.S. PVO operating in El Salvador or a local NGO over a period of 20 months.

USAID/El Salvador is also exploring the possibility of a collaborative effort with another donor or the GOES to increase the number of improved houses built in the affected area. Another option under consideration is modify the house design to reduce the cost per house. For example, USAID could finance the construction of only the mound and floor, providing the owner with a raised platform on which to construct the house.

USAID is making no provision for major relocations of communities to less flood-prone areas. Given El Salvador's high population density, the highest in the continental Western Hemisphere, and the richness of the soil of the floodplains it is unrealistic to think that those lands would not be resettled by someone else. There may be cases, however, in which relocation of a house or group of houses is required to reduce danger to the families.

Schools

Hurricane Mitch damaged or destroyed 283 schools. Several donors -- including the German technical assistance agency, the Red Cross and UNICEF -- and the GOES have plans to repair or reconstruct 74 of these schools. The 209 remaining Mitch-damaged schools are in addition to the 1,685-school deficit estimated by the GOES before the hurricane. A $70.9 million loan from the InterAmerican Development Bank will finance the building of 949 new schools, reducing the pre-Mitch deficit to 736 schools.

Over the two years of this Special Objective, USAID will reconstruct or repair 80 schools damaged by Mitch. The design of the schools will take into account measures to make them more resistant to flooding or landslides. Priority attention will be given to those schools located in the target area, which account for 100 of the 283 Mitch-damaged schools in the country. The activity will be implemented through a competitively selected U.S. PVO already working in El Salvador or a local NGO.

V. IR 3: Environmental impact of future natural disasters mitigated

Indicators:

1. Number of people trained in disaster preparedness
2. Number of communities covered by municipal disaster mitigation
3. Number of municipalities with solid waste management plans
4. Number of hectares reforested

The devastating impact of Hurricane Mitch on El Salvador, and the region, is directly linked to previous severe degradation of the environment by deforestation, over-population and the lack of effective early warning systems. Reducing the vulnerability of the rural poor to future natural disasters must include steps to better manage the watersheds, while also improving community, and local and national government disaster preparedness.

Environmental Management

Along the coast, the mangroves that allow seawater intrusion and make the area less susceptible to the effects of high waves and hurricanes are disappearing. On the hills, the lack of vegetation leads to greater run-off and landslides. Lack of tree cover in the upper Lempa watershed also magnifies the buildup of silt behind the dams. Deforestation of sub-watersheds on both sides of the lower Lempa and the Rio Grande de San Miguel makes those already flood-prone areas even more vulnerable to disaster.

The municipalities of Jujutla and San Pedro Puxtla in Ahuachapan, and Tecapan, Berlin, Alegria and Santiago de Maria in Usulutan, experienced large landslides blocking parts of their roads and damaging water systems. In Berlin and Alegria landslides occurred in one natural forested area and 333 hectares of coffee farms. Most landslides occurred in coffee farms that are using full sun crops (café al sol) and are located on high slopes. Other areas affected are located in the San Vicente Volcano Watershed, along the El Ojushte, El Terrero and San Antonio rivers.

In the aftermath of Hurricane Mitch, many NGOs and communities in the coastal zone, especially those on the banks of the Lempa River, have called for the building of a system of levees and dikes to minimize the impact of flooding. A plan for such a system does exist, and the GOES, through the Ministry of Agriculture, has already begun building 7.5 kilometers of levees on the San Vicente (western) side of the Lempa River. Local currency resources generated under Japanese Government programs financed the plan and the levees now under construction. The remaining additional $3 million needed to complete the San Vicente side and build the full levee on the eastern bank are also expected to come from these local currency resources, but use of these funds has not yet been authorized. Complementary drainage canals, access roads, and raised flood refuge sites add another $9.8 million to the cost of completing the full Lempa River flood protection project. This effort will be complemented by the InterAmerican Development Bank's ongoing activity to improve the management of the upper Lempa watershed.

The Lempa River is, of course, only one of the many rivers in the area that contribute to the flooding problem. No estimate is available for the total cost of building flood control systems for

the entire target floodplain. The development of a comprehensive flood control plan could be an area for collaboration between USAID, the USACE and the U.S. Geological Survey (USGS).

Reversing the environmental degradation and the intense population pressures on the land is beyond the scope of this Special Objective, and the cost of constructing the entire flood control system exceeds USAID/El Salvador's resources. USAID will work with communities and local governments to identify critical flood and landslide control measures. This process will be complemented by support for reforestation and limited infrastructure improvements, such as retaining walls and drainage ditches at critically vulnerable points. These measures will complement other community-level activities under this objective. USAID will also stay alert for opportunities to use our limited resources to leverage other donor resources to address larger infrastructure requirements.

Disaster Preparedness

One of the keys to surviving any disaster is preparedness. Few, if any, of the communities in the targeted area had made preparations for such a disaster, even though the area gets flooded every few years. It was clearly evident during the flood emergency that the more organized communities were better able to evacuate residents and obtain assistance from other entities, such as the Salvadoran Armed Forces. Much of the flooding damage in the lower Lempa was the result of poor management of the 15th of September Dam. At the national level, the scale of the disaster overwhelmed the management capacity of the Salvadoran National Emergency Committee, considered to be one of the best in the region.

The success of any mitigating action is based on community awareness and participation, municipal readiness and an effective organizational structure for COEN. At the community level, education programs will train communities in the disaster vulnerability assessment, disaster preparedness and implementation of early warning systems. Community-based health promoters or other community leaders may be given special training to be able to alert the community to potential flooding and assist residents to evacuate. Efforts to build flood-resistant houses and schools, described under other intermediate results, will provide communities with safe havens to wait out the floods if necessary.

USAID/El Salvador, in coordination with USAID/OFDA, will provide assistance to the GOES to identify options for making the COEN a more effective organization and delineate the roles of other entities, public and private, in responding to natural disasters. This assistance will complement support being provided by the Organization of American States. Assistance will also be given to municipal governments in the preparation of disaster preparedness plans. This assistance will emphasize the importance of community participation in the planning process.

These efforts will complement the anticipated work of USGS to install hydrometric stations in the upper Lempa region, both in Honduras and El Salvador that will provide real time hydrological information to the responsible entities so they can take preventive measures. Training for dam operators on managing the release of water will need to be an integral part of this activity.

VI. Program Implementation and Management

Performance Monitoring Plan

USAID/El Salvador is developing a performance-monitoring plan for the Special Objective that will have the following elements:

- Performance Indicators. The Special Objective team has identified quantitative indicators for each of the intermediate results and at the strategic objective level. At the intermediate result level, all of the indicators will be activity outputs. For each indicator, the performance-monitoring plan will include a definition of the indicator, targets, the source of the data, method of collection, schedule of collecting the data and the individual responsible for ensuring USAID receives the data. Most data will be collected and reported to USAID by the implementing entities on a quarterly basis. Quarterly reporting of this data will be needed given the short period for implementation.
- Geographic information system. The mission's geographic information system (GIS) will be used to plan and coordinate USAID-funded activities, track activity implementation against needs identified in each community, monitor performance at the SO level, and assist with coordination among donors, GOES agencies and NGOs operating in the target area. Most of the data needed for the GIS will come from the indicators that the implementing entities report on. Work on building the data sets on community needs is already in progress.
- Field Trips. Members of the team will make frequent trips to the affected areas, especially the targeted 10 municipalities, to monitor implementation, consult with communities and municipal governments and coordinate with other partners and stakeholders. The engineer on the team will spend considerably more time in the field than the other team members to assist all the activity managers monitor implementation.
- Coordination Meetings. USAID staff will participate in meetings and workshops to coordinate efforts among donors, NGOs, GOES agencies and other actors.

USAID/El Salvador does not plan to conduct any evaluations of the activities under this Special Objective. The timetable is too short for an evaluation to be a useful management tool for guiding implementation. An evaluation of the entire response to Hurricanes Mitch and Georges, both emergency and reconstruction phases, could provide useful lessons learned for the Agency, other US agencies and our partners. Therefore, USAID/El Salvador proposes that CDIE or LAC/RSD conduct such an evaluation in all the affected countries after the reconstruction activities are completed.

Environmental Considerations

The environmental considerations for the Special Objective are being handled the same as for any new activity. Each of the components of the objective are being considered in a global Initial Environmental Evaluation (IEE) which either links the action to an active IEE or Environmental

Assessment or details the potential environmental impacts and recommends a positive or negative threshold decision.

Audit and Accountability Plan

USAID/El Salvador anticipates that the funds provided under this Special Objective will be programmed for implementation through a combination of existing and new mechanisms. In order to ensure prudent management of USAID funds, the mission will follow the standard control procedures outlined in various mission orders and ADS chapters. In addition, USAID/El Salvador and RIG/SS will collaborate on a risk assessment of the planned implementation mechanisms, and, where necessary, will work together to establish special control mechanisms to ensure accountability of funds. The procedures to be employed for audit and accountability include:

- Pre-award audits or surveys when the mission determines that the prospective contractor/grantee (particularly new entities) need to demonstrate sufficient capability to responsibly manage USAID funds. ADS Chapter 591 describes these requirements.
- U.S. contractors and grantees will be subject to standard audits required by the Federal Acquisition Regulations (FAR) and OMB A-133 Circular respectively. The oversight to ensure compliance with these requirements is the responsibility of the USAID/W Office of Procurement.
- Local contractors and grantees and GOES recipients will be subject to recipient-contracted audits per ADS chapter 591, the chapter of the Mission Operations Manual entitled "Audit Requirements, Responsibilities and Procedures" and RIG guidelines. Local NGOs implementing Mitch reconstruction activities will contract for their own audits. The Court of Accounts, the GOES's supreme audit institution recently qualified by RIG/SS to audit USAID funds, will audit GOES recipients.
- Special Objective Team members will exercise close management and financial oversight activity implementation and in the approval of disbursements based on duly executed vouchers. Given the special nature of the activity, the mission may decide to assign a full-time financial analyst to provide overall financial management support and to perform pre-award surveys and conduct periodic reviews of implementing entities to test the effectiveness of their internal controls and ensure compliance with pertinent agreements.

Sufficient funds will be budgeted in the respective agreements to cover the costs of the required audits.